IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): A digital radio broadcasting transmitter, comprising:

a power tube including a grid and an anode;

an excitation device configured to excite the grid using a variable phase signal; and

a modulator configured to modulate the anode using a variable amplitude signal,

wherein a signal applied to the grid and anode of the power tube has a phase and an amplitude respectively represented by a phase and an amplitude of a complex signal to be transmitted, and

wherein the excitation device has a linear amplification characteristic for low amplitudes of the complex signal to be transmitted and operates under saturated conditions when the amplitude of the complex signal to be transmitted exceeds a determined threshold value, so that the amplification characteristic of the digital radio broadcasting transmitter as a whole remains linear independently of the amplitude of the complex signal to be transmitted.

Claim 2 (Currently Amended): The digital radio broadcasting transmitter of claim 1, further comprising:

a control device configured to apply a low and approximately constant polarization voltage to the anode of the power tube when the amplitude of the complex signal to be transmitted is below the determined threshold value and to modulate the anode voltage proportionally to ~~the~~ a modulus of the complex signal to be transmitted when the amplitude of the complex signal to be transmitted is higher than the determined threshold value.

Claim 3 (Previously Presented): The digital radio broadcasting transmitter of claim 1, wherein the power tube operates in linear amplification mode when the amplitude of the

complex signal to be transmitted is below the determined threshold value and operates as a switch when the amplitude of the complex signal to be transmitted is higher than the determined threshold value.

Claim 4 (Previously Presented): The digital radio broadcasting transmitter of claim 2, wherein the power tube operates in linear amplification mode when the amplitude of the complex signal to be transmitted is below the determined threshold value and operates as a switch when the amplitude of the complex signal to be transmitted is higher than the determined threshold value.

Claim 5 (Previously Presented): A radio transmitter, comprising:

a control device configured to generate at least two phase control signals and at least one amplitude control signal using a real component and an imaginary component of a complex signal to be transmitted;

a frequency synthesizer configured to generate at least two constant signals with constant amplitude and frequency;

at least two multiplier circuits arranged in correspondence with the at least two phase control signals and the at least two constant signals, each multiplier circuit comprising at least two operand inputs and being configured to generate at least one transformed phase control signal;

an adder circuit configured to generate a signal equal to the sum of transformed phase control signals generated by the at least two multiplier circuits;

an excitation device configured to excite a grid of a power tube using the signal generated by the adder circuit in a linear amplification mode when the complex signal to be transmitted has an amplitude below a predetermined amplitude threshold and in a saturated

mode when the complex signal to be transmitted has an amplitude above the predetermined amplitude threshold;

a modulator configured to generate a modulated signal at an anode of the power tube using the at least one amplitude control signal generated by the control device; and

a matching and coupling device configured to generate a matched and coupled signal using the modulated signal; and

an antenna configured to transmit the matched and coupled signal.

Claim 6 (Previously Presented): The radio transmitter of claim 5, wherein the control device generates two sinusoidal phase control signals.

Claim 7 (Previously Presented): The radio transmitter of claim 6, wherein one of the two phase control signals is a sine of a phase angle of the complex signal to be transmitted and the other is a cosine of the phase angle of the complex signal to be transmitted.

Claim 8 (Previously Presented): The radio transmitter of claim 5, wherein the amplitude control signal is proportional to a modulus of the complex signal to be transmitted.

Claim 9 (Previously Presented): The radio transmitter of claim 5, wherein the frequency synthesizer synthesizes two constant signals having frequencies that are identical and phases that are shifted by 90 degrees.

Claim 10 (Previously Presented): The radio transmitter of claim 5, further comprising:

at least two demodulating multiplier circuits coupled to the signal transmitted by the antenna, arranged in correspondence with the at least two constant signals, and configured to generate an estimated real component and an estimated imaginary component of the signal transmitted by the antenna, each demodulating multiplier circuit comprising at least two inputs.

Claim 11 (Currently Amended): The radio transmitter of claim 10, wherein the control ~~circuit~~ device comprises a signal processor configured to control the excitation device by comparing the estimated real and imaginary components generated by the at least two demodulating multiplier circuits and the real and imaginary components of the complex signal to be transmitted.

Claim 12 (Currently Amended): The radio transmitter of claim 11, wherein the control ~~circuit~~ device first applies to ~~the~~ operand inputs of the multiplier circuits the real and imaginary components of the complex signal to be transmitted and then applies the amplitude control signal to the modulator.

Claim 13 (Previously Presented): The radio transmitter of claim 5, wherein the control device determines a polarizing signal as a function of an amplitude of the complex signal to be transmitted to polarize the grid of the power tube.

Claim 14 (Previously Presented): The radio transmitter of claim 13, further comprising:

at least two demodulating multiplier circuits coupled to the signal transmitted by the antenna, arranged in correspondence with the at least two constant signals, and configured to

generate an estimated real component and an estimated imaginary component of the signal transmitted by the antenna, each demodulating multiplier circuit comprising at least two inputs.

Claim 15 (Currently Amended): The radio transmitter of claim 14, wherein the control ~~circuit~~ device comprises a signal processor configured to control the excitation device by comparing the estimated real and imaginary components generated by the at least two demodulating multiplier circuits and the real and imaginary components of the complex signal to be transmitted.

Claim 16 (Currently Amended): The radio transmitter of claim 15, wherein the control ~~circuit~~ device first applies to ~~the~~ operand inputs of the multiplier circuits the real and imaginary components of the complex signal to be transmitted and then applies the amplitude control signal to the modulator.

Claim 17 (Previously Presented): The radio transmitter of claim 16, wherein the control device generates two sinusoidal phase control signals.

Claim 18 (Previously Presented): The radio transmitter of claim 17, wherein one of the two phase control signals is a sine of a phase angle of the complex signal to be transmitted and the other is a cosine of the phase angle of the complex signal to be transmitted.

Claim 19 (Previously Presented): The radio transmitter of claim 18, wherein the amplitude control signal is proportional to a modulus of the complex signal to be transmitted.

Claim 20 (Previously Presented): The radio transmitter of claim 19, wherein the frequency synthesizer synthesizes two constant signals having frequencies that are identical and phases that are shifted by 90 degrees.